

Docket No. F-7029

Ser. No. 09/885,829

REMARKS

Applicants wish to thank the Examiner in charge of this application for the courteous and helpful interview given on May 10, 2004.

At the interview, the Examiner stated that there was an increased probability that the application would be allowable if the claims were limited to recite the treatment of seeds with effective microorganisms including a bacterium belonging to the genus *Pantoea* and a bacterium belonging to the genus *Leclercia*. This has been accomplished by the foregoing Amendment of independent Claim 2 to recite such treatment with the two types of bacteria. Note that all of the other claims are dependent of claim 2 and therefore include the use in the process of the two type of bacteria.

The proposed amendment is clearly supported by original claims 2, 3, and 4, and supported in the specification on page 16 lines 8-20, which discloses the use of plurality of different genres of effective microorganisms, and Example 1-4 in Table 2 on page 25, Example 2-4 in Table 3 on page 28, and Example 3-4 in Table 4 on page 31, each of which shows the use of a combination of bacteria, belonging to the genus *Pantoea* and *Leclercia* which results in a particularly desirable effect of relatively low contamination by *Xanthomonas campestris* and a relatively high germination rate, and Example

Docket No. F-7029

Ser. No. 09/885,829

4-4 in Table 5 on page 33 which also employs a combination of bacteria of the genres *Pantoea* and *Leclercia* and results in particularly low onset rates of disease under a natural or moistened condition. These effects of the use of this combination of the specified type of bacteria are not suggested by any of the references relied on for the rejections set out in the Office Action and constitute an additional unobvious result which strengthens the arguments stated hereinafter against the rejections under 35 U.S.C. 103(a).

It is also submitted that the proposed amendment should be entered since it does not present any new issues in view of present claims 3 and 4 which recite the use of bacteria of the genus *Pantoea* and the genus *Leclercia* respectively as the effective microorganism, and claim 18 which recites the use of a plurality of types of microorganisms of different genres in carrying out the claimed treatment. The presence of these three claims certainly contemplates within the subject matter of the rejected claims the further limitation in the proposed amendment of claim 2 of the use in the same treatment of bacteria belonging to the genres *Pantoea* and *Leclercia* as effective microorganisms, so as to preclude any question of new issues arising from the proposed amendment.

Turning now to the rejections of the present claims set out in the Office Action, claims 2-8, 10 and 13-21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Soviet Union Patent SU 1793878 to Dzhalilov et al in

Docket No. F-7029

Ser. No. 09/885,829

view of U.S. Patent No. 5,697,186 to Neyra et al. The rejection relies on an abstract to Dzhililov et al. which discloses the treatment of cabbage plants with a bacterial suspension of *Pseudomonas* sp. VKPM B-3487 after the seeds of the plant have been soaked in water at 50 degrees for 30 mins. The treatment is repeated on the root system of the plant before planting it in soil and finally at the head-forming stage. The Office Action refers to the disclosed bacteria as "an effective microorganism which is antagonistic against a pathogen of a seed borne disease". While the Office Action admits that Dzhililov et al "does not explicitly teach a plurality of types of microorganism" as required by the rejected claims, the Action points out that Neyra et al. teaches applying *Pseudomonas* bacteria with a plurality of other microorganisms and concludes that it would be obvious to modify the disclosure of Dzhililov by utilizing a plurality of microorganisms as disclosed by Neyra.

Regarding claims 2, 6, 8, 10, 13, 14, 15, and 21, it should be noted that, contrary to the assumption of the rejection, Neyra et al. does not disclose the use of a "plurality of microorganisms which are antagonistic against a pathogen of a seed borne disease" (emphasis added), as specifically recited in rejected independent claim 2. Rather, Neyra et al utilizes a flocculated form of preferably *Azospirillum* and/or *Rhizobium*, for the purpose of improving plant growth. Various properties of these bacteria are mentioned in the reference as

Docket No. F-7029

Ser. No. 09/885,829

contributing to their function of improving plant growth, including their nitrogen-fixing properties, their ability to be transformed into dessication-resistant encysting forms, and their ability in flocculated form to deliver other beneficial microorganism and improve seed priming. However, there is no suggestion in Neyra et al that their growth promoting bacteria are antagonistic against a pathogen of a seed borne disease, as recited in the rejected claims. Thus, since Dzhililov et al. does not indicate that the cabbage disclosed requires a growth-promoting flocculated bacteria additive as disclosed by Neyra et al., there is nothing which would lead a person having ordinary skill in the art to add such flocculated bacteria to the Pseudomonas species of Dzhililov et al. as assumed in the rejection.

Furthermore, even if the flocculated bacteria of Neyra et al. were applied to the cabbage of Dzhililov et al. with an anti-fungal bacteria such as the Pseudomonas species described in Neyra et al., the resulting treatment still would not meet the recitation in the rejected independent claim 2 of the treatment with a plurality of microorganisms antagonistic against a pathogen of a seed borne disease. The reason for this is that the disclosure in Neyra et al. of the addition of antifungal bacterial species such as Pseudomonas to the flocculation of the growth promoting bacteria, relied on in the Office Action for this rejection, is limited to use with such growth promoting bacteria. However,

Docket No. F-7029

Ser. No. 09/885,829

as pointed out previously, the person skilled in the art would not be led by the disclosure of Dzhalilov et al., to employ such growth-promoting bacteria in the treatment of cabbage for protection against bacteria attack. Therefore, such skilled person would not be led by the disclosure of Neyra et al., to utilize a plurality of antifungal species of microorganisms in carrying out the treatment of Dzhalilov et al.

Finally, the foregoing amendment of claim 2 to include the use of bacteria belonging to both the genres *Pantoea* and *Leclercia* as effective microorganisms in the treatment of seed diseases, bolsters the patentability by these claims under 35 U.S.C. 103(a) based on these references, as pointed out previously.

With regard to the additional features recited in claims 17 and 18 discussed at the bottom of page 2 of the Office Action; in claims 3, 4, 5, 16, 19, and 20 discussed in the first paragraph of page 3 of the Office Action; and in claim 7 discussed in the second paragraph of page 3 of the Office Action, it is submitted that the comments in the Office Action concerning such features do not detract from the arguments against the obviousness of the most significant elements of the process recited in independent claim 2 and included in these claims, which were made in the previous discussion of the rejection of claim 2 based on these references.

Docket No. F-7029

Ser. No. 09/885,829

Claims 11 and 12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Soviet Union Patent SU 1793878 to Dzhililov et al as applied to claim 2 above, and further in view of U.S. Patent No. 4,798,723 to Dart, which is relied on as teaching the application of a microorganism treatment to seed by soaking the seed in an aqueous dispersion of the effective microorganism, pelleting, film coating and water absorbing. However, regardless of any disclosure by Dart of pelleting or film coating of seed, the overall process of claims 11 and 12, which include all the steps recited in independent claim 2, are still not rendered obvious by the cited combination of references for the same reasons that the process of claim 2 is not obvious with respect to the combination of the teachings of Dzhililov et al. and Neyra et al., as fully discussed previously.

Claims 2-9 and 14-21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Control of Phytopathogenic Prokaryotes By Cultural Management and Chemicals in view of Soviet Union Patent SU 1793878 to Dzhililov et al. and U.S. Patent No. 5,697,186 to Neyra et al.

The disclosure of the Cultural Management reference is described in the Office Action in a manner similar to its description in the previous prosecution of this application, namely, as teaching a method of controlling disease by at least one of a physical technique, a chemical technique or an "effective

Docket No. F-7029

Ser. No. 09/885,829

microorganism: which is antagonistic against a pathogen of a seed borne disease." Various differences have been pointed out in earlier filed papers between the method of Cultural Management and that recited in the rejected claims, for example on page 6 and 7 of the Appeal Brief of April 28, 2003 and pages 9 and 10 of the Amendment of November 26, 2003. These differences may be summed up as follows:

- 1) Cultural Management does not show the use of any microorganisms for controlling a seed disease, contrary to what is stated in the Office Action. Rather, it is assumed in the Office Action that antibiotics such as streptomycin are microorganisms, which is incorrect as indicated in any dictionary;
- 2) Cultural Management does not show the order of treatment recited in the rejected claims which is particularly advantageous in the treatment of an active disease, as recited in the rejected claims as compared with the prevention of disease emphasized by Cultural Management; and
- 3) Cultural Management does not teach the treatment of initially sterilized seeds by an "effective plurality" of types of microorganisms which are antagonistic against a pathogen of a seed borne disease" (Emphasis added) as recited in independent claim 2.

Furthermore, these differences between Cultural Management and the rejected claims are not overcome by the combination of Dzhalilov et al. and

Docket No. F-7029

Ser. No. 09/885,829

Neyra et al. since 1) there is nothing in the disclosures of Cultural Management or the abstract of Dzhililov et al. to lead one having ordinary skill in the art to employ the sequence of treatments disclosed by Dzhililov et al. in carrying out the method of Cultural Management; and 2) the combination of the disclosures of Dzhililov et al. and Neyra et al. when added to that of Cultural Management is not sufficient to suggest to the person skilled in the art that the method disclosed by Cultural Management should be practiced using a plurality of types of microorganisms which are antagonistic against a pathogen of a seed borne disease, as required by claim 2 and its dependent claims. This is true for reasons similar to those discussed previously in connection with the unsoundness of the rejection of these claims based on the combination of Dzhililov et al. and Neyra et al. in the absence of Cultural Management.

As is the case with the latter rejection, this rejection which relies on Cultural Management as a reference is even less sound when claim 2 is amended to recite the use of bacteria belonging to the genres *Pantoea* and *Leclercia* among the plurality of types of effective microorganisms, as effected by the foregoing amendment.

With respect to the rejection based on these references of claims containing limitations in addition to those of claim 2 as discussed on pages 5 and 6 of the Office Action, it is submitted that the recitation in claims of these

Docket No. F-7029

Ser. No. 09/885,829

additional limitations does not alter the fact that such claims are patentable over the combination of references for the same reasons that independent claim 2 is so patentable.

Claims 10-13 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Control of Phytopathogenic Prokaryotes By Cultural Management and Chemicals as applied to claim 2 above, and further in view of U.S. Patent No. 4,798,723 to Dart et al. However, the addition of Dart et al. to the combination of Cultural Management, Dzhalilov et al. and Neyra et al does not cause claims 10-13 to be any less patentable over the resulting combination of references than is claim 2 over the combination of references in the absence of Dart et al., as discussed previously, since the combination including Dart et al. still does not render obvious the method including the steps recited in claim 2 which are included in claim 10-13. This is similar to the argument expressed previously against the rejection of claims 11 and 12 based on the combination of Dzhalilov et al., Neyra et al. and Dart et al.

Entry of this Amendment and Allowance of the application are now believed to be warranted, and such action at an early date is earnestly solicited.

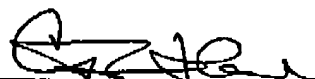
Docket No. F-7029

Ser. No. 09/885,829

Respectfully submitted,

JORDAN AND HAMBURG LLP

By



C. Bruce Hamburg
Reg. No. 22,389
Attorney for Applicants

Jordan and Hamburg LLP
122 East 42nd Street
New York, New York 10168
(212) 986-2340